Author Index to Volume XXIV

Agar, D. W.
—; Bailey, J. E.: Measurements and Models of Synchronous Growth of Fission Yeast Induced by Temperature Oscillations, 217
Aiba, S. See Dwivedi, C. P., 1465; Okada, M., 143
Alberti, B. N. See Klibanov, A. M., 25
Allen, A. L.
—; Andreotti, R. L.: Continuous Culture of *Aspergillus phoenicis* QM 329 for the Production of Cellobiase (Communication), 2747
Anacleto, J.
—; van Uden, N.: Kinetics and Activation Energetics of Death in *Saccharomyces cerevisiae* Induced by Sulfur Dioxide, 2477
Andreotti, R. L. See Allen, A. L., 2747
Andrews, G. F.
Fluidized-Bed Fermenters: A Steady-State Analysis, 2013
Arai, Y. See Yamaguchi, R., 1081
Arcuri, E. J.
Continuous Ethanol Production and Cell Growth in an Immobilized-Cell Bioreactor Employing *Zymomonas mobilis*, 595
Arnaud, A. See Blondin, B., 2031
Arrieta-Escobar, A.
—; Belin, J. M.: Effects of Polyphenolic Compounds on the Growth and Celluloytic Activity of a Strain of *Trichoderma viride* (Communication), 983
Ashley, M. H. J.
—; Mooyman, J. G.: Design Optimization of Continuous Sterilizers, 1547
Azov, Y.
—; Shelef, G.; Moraine, R.: Carbon Limitation of Biomass Production in High-Rate Oxidation Ponds, 579

Bagby, M. O. See Carr, M. E., 2441; Detroy, R. W., 1105
Bailey, J. E. See Agar, D. W., 217; Do, D. D., 1527
Bajpai, P. See Margaritis, A., 941, 1473, 1483
Bandyopadhyay, K. K. See Ghose, T. K., 797
—; Ghose, T. K.: Studies on Immobilized *Saccharomyces cerevisiae*. III. Physiology of Growth and Metabolism on Various Supports, 805
Banerjee, M.
—; Chakrabarty, A.; Majumdar, S. K.: Immobilization of Yeast Cells Containing β-Galactosidase, 1839
Baratti, J. See Lavayre, J., 1007, 2175
Barbe, M. C. See Pilon, L., 2063
Barford, J. P. See Brooks, J. D., 847
Barnett, i. T. R. See Whiteside, J. P., 245
Baruah, J. N. See Reddy, P. G., 1241
Becker, W. See Shamala, T. R., 1183
Beddows, C. G.
—; Gil, M. H.; Guthrie, J. T.: The Immobilization of Enzymes, Bovine Serum Albumin, and Phenylpropylamine to Poly(Acrylic Acid)–Polyethylene-Based Copolymers, 1371
Belin, J. M. See Arrieta-Escobar, A., 983
Bell, D. J. See Chan, M. Y. Y., 1897
—; Dunnill, P.: Shear Disruption of Soya Protein Precipitate Particles and the Effect of Aging in a Stirred Tank, 1271
—; Heywood-Waddington, D.; Hoare, M.; Dunnill, P.: The Density of Protein Precipitates and Its Effect on Centrifugal Sedimentation, 127
—; Dunnill, P.: The Influence of Precipitation Reactor Configuration on the Centrifugal Recovery of Isoelectric Soya Protein Precipitate, 2319
Berg, T. G. O.
—; Ljunggren, B.: The Rate of Growth of a Single Yeast Cell (Communication), 2739
Black, L. T. See Carr, M. E., 2441; Slininger, P. J., 2241
Blondin, B.
—; Ratomahenina, R.; Arnaud, A.; Galzy, P.: A Study of Cellobiose Fermentation by a *Dekkera* Strain, 2031
Boening, P. H.
—; Larsen, V. F.: Anaerobic Fluidized Bed Whey Treatment, 2539
Borzani, W.
A Simple Device for Measurement of Small Feed Rates in Laboratory-Scale Fermenters (Communication), 1451
Bothast, R. J. See Detroy, R. W., 1105; McGhee, J. E., 1155; Slininger, P. J., 371, 2241
Botterman, J. See Spriet, J. A., 1605
Bouin, J. C.
—; Hultin, H. O.: Stabilization of Glucose Oxidase by Immobilization/Modification as a Function of pH (Communication), 1225

Bovara, R. See Carrea, G., 1
Breier, A. See Gemeiner, P., 2573
Bronnenmeier, R.
—; Markl, H.: Hydrodynamic Stress Capacity of Microorganisms, 553
Brooks, J. D.
—; Maclennan, D. G.; Barford, J. P.; Hall, R. J.: Design of Laboratory Continuous-Culture Equipment for Accurate Gaseous Metabolism Measurements, 847
Brosseau, J. D.
—; Zajic, J. E.: Agitation Effects on Hydrogen Gas Production by *Citrobacter intermedius* (Communication), 1469
Brownell, H. H. See Saddler, J. N., 1389
Bruce, J. See Davey, G., 2753
Bruin, S. See Luyben, K. Ch. A. M., 533
Bryers, J. D.
—; Characklis, W. G.: Processes Governing Primary Biofilm Formation, 2451
Buchholz, H. See Luttmann, R., 817, 1851
Buijs, C.
—; Heertjes, P. M.; Van Der Meer, R. R.: Distribution and Behavior of Sludge in Upflow Reactors for Anaerobic Treatment of Wastewater, 1975

Canterford, G. S. See Khummongkol, D., 2643
Carr, M. E.
—; Black, L. T.; Bagby, M. O.: Continuous Enzymatic Liquefaction of Starch for Saccharification, 2441
Carrea, G.
—; Bovara, R.; Pasta, P.; Cremonesi, P.: The Effect of Hofmeister Anions and Protein Concentration on the Activity and Stability of Some Immobilized NAD-Dependent Dehydrogenases, 1
Cashion, P.
—; Javed, A.; Harrison, D.; Seeley, J.; Lentini, V.; Sathe, G.: Enzyme Immobilization on Tritylagarose, 403
—; Lentini, V.; Harrison, D.; Javed, A.: Enzyme Immobilization on Tritylagarose: Reusability of Both Matrix and Enzyme (Communication), 1221
Chakrabarty, A. See Banerjee, M., 1839
Chan, M. Y. Y. See Virkar, P. D., 871
—; Bell, D. J.; Dunnill, P.: The Relationship Between The Zeta Potential and The Size of Soya Protein Acid Precipitate Particles (Communication), 1897
Chang, H. N.
—; Ghim, Y. S.; Cho, Y. R.; Landis, D. A.; Reilly, P. J.: Author Index Entries for "Immobilization of *Leuconostoc mesenteroides* Dextransucrase to Porous Phenoxyacetyl Cellulose Beads" (Erratum), 1929
Chang, H.-T. See Ollis, D. F., 2583
—; Ollis, D. F.: Extracellular Microbial Polysaccharides: Generalized Power Law for Biopolysaccharide Solutions, 2309
Chang, S. D. See Shieh, W. K., 2557
Chang, Y. C.
—; Myerson, A. S.: Growth Models of the Continuous Bacterial Leaching of Iron Pyrite by *Thiobacillus ferrooxidans*, 889
Chaplin, B.
—; Green, M. L.: Preparation and Characterization of Soluble Conjugates of Defined Molecular Sizes Prepared by Linkage of Pepsin and Carboxypeptidase A to Dextrans, 2627
Characklis, W. G. See Bryers, J. D., 2451; Escher, A., 2283
Charles, M. See Meyer, H.-P., 1905
Chen, A. K.
—; Starzmann, J. A.; Liu, C. C.: Potentiometric Quantitation of Glycerol Using Immobilized Glycerol Dehydrogenase, 971
Chen, C. Y. See Shieh, W. K., 2557
Chen, L. See Taylor, F., 317
Cheryan, M. See Deeslie, W. D., 69
Chiam, H. F.
—; Harris, I. J.: A Model for Noninhibitory Microbial Growth, 37
Cho, Y. R. See Chang, H. N., 1929
Choi, C. Y. See Park, J. M., 1623, 2215
Choi, S. Y.
—; Ryu, D. D. Y.; Rhee, J. S.: Production of Microbial Lipid: Effects of Growth Rate and Oxygen on Lipid Synthesis and Fatty Acid Composition of *Rhodotorula gracilis*, 1165
Chordi, A. See Olivero, I., 2725
Chotani, G.
—; Constantinides, A.: On-Line Glucose Analyzer for Fermentation Applications (Communication), 2743
Clark, D. S. See Do, D. D., 1527
Clermont, L. P. See Saddler, J. N., 1389
Coleman, G. N. See Hammons, J. L., 1773
Cometta, S. See Sonnleitner, B., 2597
Condrey, R. E.
The Chemostat and Blackman Kinetics (Communication), 1705
Constantinides, A. See Chotani, G., 2743
Cooper, D. G. See Duvnjak, Z., 165
Coughlan, M. P. See Kierstan, M., 1461
Cowan, D. A.
—; Daniel, R. M.: The Properties of Immobilized Caldolysin, a Thermostable Protease from an Extreme Thermophile, 2053
Cremonesi, P. See Carrea, G., 1; D'Angiuro, L., 207
Crumpton, C. F. See Ramamurti, K., 2267
Cunningham, R. L. See Detroy, R. W., 1105

Dahod, S. K.
Redox Potential as a Better Substitute for Dissolved Oxygen in Fermentation Process Control (Communication), 2123
Daigger, G. T.
—; Grady, C. P. L., Jr.: An Assessment of the Role of Physiological Adaptation in the Transient Response of Bacterial Cultures, 1427
Dairaku, K.
—; Izumoto, E.; Morikawa, H.; Shioya, S.; Takamatsu, T.: Optimal Quality Control of Bakers' Yeast Fed-Batch Culture Using Population Dynamics, 2661

D'Angiuro, L.
—; Cremonesi, P.: Immobilization of Glucose Oxidase on Sepharose by UV-Initiated Graft Copolymerization, 207
Daniel, R. M. See Cowan, D. A., 2053
Daniels, L.
Comments on Enzymatic Synthesis of Organic Acids and Alcohols from H_2, CO_2, and CO (Communication), 2099
Darcy, G. See Kierstan, M., 1507
Davey, G.
—; Bruce, J.: Detection and Identification of a Substance Inhibitory to Microbial Growth Produced during the Mild Acid Hydrolysis of Piggery Slurry (Communication), 2753
De Buyser, D. R. See Spriet, J. A., 1605
Decker, T. F. See Osborn, J. A., 1653
Deckwer, W.-D.
—; Nguyen-Tien, K.; Schumpe, A.; Serpemen, Y.: Oxygen Mass Transfer into Aerated CMC Solutions in a Bubble Column, 461
Deeslie, W. D.
—; Cheryan, M.: A CSTR–Hollow-Fiber System for Continuous Hydrolysis of Proteins. Factors Affecting Long-Term Stability of the Reactor, 69
Dennett, M. R. See Goldman, J. C., 619
Desrochers, M. See Pilon, L., 2063
Detroy, R. W. See McGhee, J. E., 1155
—; Cunningham, R. L.; Bothast, R. J.; Bagby, M. O.; Herman, A.: Bioconversion of Wheat Straw Cellulose/Hemicellulose to Ethanol by *Saccharomyces uvarum* and *Pachysolen tannophilus*, 1105
Deus, B.
—; Zenk, M. H.: Exploitation of Plant Cells for the Production of Natural Compounds, 1965
De Visscher, P. L. See Spriet, J. A., 1605
Dhawan, S. See Shirkot, C. K., 1233
Dimitrova, L. See Lalchev, Z., 2253
Do, D. D.
—; Clark, D. S.; Bailey, J. E.: Modeling Enzyme Immobilization in Porous Solid Supports, 1527
Doel, T. R. See Whiteside, J. P., 245
Dostalek, M.
—; Haggstrom, M.: A Filter Fermenter—Apparatus and Control Equipment, 2077
Dougherty, E. M. See Weiss, S. A., 1145, 2766
Drawert, F. See Shamala, T. R., 1183, 1287, 1301
Drobnik, J. See Kovar, J., 837
—; Labsky, J.; Kudlvasrova, H.; Saudek, V.; Svec, F.: The Activation of Hydroxy Groups of Carriers with 4-Nitrophenyl and *N*-Hydroxysuccinimidyl Chloroformates, 487
D'Souza, S. F.
—; Kaul, R.; Nadkarni, G. B.: Immobilization of Microbial Cells in Hen Egg White (Communication), 1701
Duddridge, J. E.
—; Kent, C. A.; Laws, J. F.: Effect of Surface Shear Stress on the Attachment of *Pseudomonas fluorescens* to Stainless Steel under Defined Flow Conditions, 153
—; Kent, C. A.; Laws, J. F.: Effect of Surface Shear Stress on the Attachment of *Pseudomonas fluorescens* to Stainless Steel under Defined Flow Conditions (Erratum), 1930
Dunn, I. J. See Tanaka, H., 669; Toda, K., 651, 2292
Dunnill, P. See Bell, D. J., 127, 1271, 2319; Chan, M. Y. Y., 1897; Narendranathan, T. J., 2103; Virkar, P. D., 871
Durand, G. See Ghommidh, C., 605
Duvnjak, Z. See Kosaric, N., 691
—; Kosaric, N.; Kliza, S.; Hayes, D.: Production of Alcohol from Jerusalem Artichokes by Yeasts, 2297
—; Cooper, D. G.; Kosaric, N.: Production of Surfactant by *Arthrobacter paraffineus* ATCC 19558, 165
Dvali, M. Sh. See Kvesitadze, G. I., 1765
Dwivedi, C. P.
—; Imanaka, T.; Aiba, S.: Instability of Plasmid-Harboring Strain of *E. coli* in Continuous Culture (Communication), 1465

Erickson, L. E. See Solomon, B. O., 633
Eroshin, V. K.
—; Minkevich, I. G.: On the Upper Limit of Mass Yield of an Organic Product from an Organic Substrate (Communication), 2263
Escher, A.
—; Characklis, W. G.: Algal–Bacterial Interactions within Aggregates (Communication), 2283
Esener, A. A.
—; Roels, J .A.; Kossen, N. W. F.: Dependence of the Elemental Composition of *K. pneumoniae* on the Steady-State Specific Growth Rate (Communication), 1445
—; Veerman, T.; Roels, J. A.; Kossen, N. W. F.: Modeling of Bacterial Growth; Formulation and Evaluation of a Structured Model, 1749
—; Roels, J. A.; Kossen, N. W. F.: Volume Changes during Fermentation Processes due to Gas Exchange (Communication), 1877
Evans, J. E.
Microbial Sterilization Using Fluidized Beds (Communication), 757
Exerowa, D. See Lalchev, Z., 2253

Fan, L. T. See Lee, Y.-H., 2383
Feder, J. See Tolbert, W. R., 1671, 1885
Fennington, G.
—; Lupo, D.; Stutzenberger, F. J.: Enhanced Cellulase Production in Mutants of *Thermomonospora curvata*, 2487
Fiechter, A. See Kappeli, O., 2519; Sonnleitner, B., 2597
Fireoved, R. L.
—; Mutharasen, R.; Lee, Y.-H.: Measurement of Gas-Phase Oxygen Concentrations with an Oxygen Electrode (Communication), 2109

Flaschel, E.
—; Raetz, E.; Renken, A.: The Kinetics of Lactose Hydrolysis for the β-Galactosidase from *Aspergillus niger*, 2499
Fredrickson, A. G. See Ratnam, D. A., 2675; Swift, S. T., 1953
Friend, B. A.
—; Shahani, K. M.: Characterization and Evaluation of *Aspergillus oryzae* Lactase Coupled to a Regenerable Support, 329
Fryer, C. See Khummongkol, D., 2643
Fujita, M. See Hashimoto, S., 1789
Furusaki, S.
—; Matsuura, I.; Nakazato, S.-I.: Some Aspects of Reaction Rate of Pyruvate Reduction by Dextra-Bound NADH and Lactate Dehydrogenase (Communication), 1211

Galzy, P. See Blondin, B., 2031
Garg, S. K.
—; Neelakantan, S.: Effect of Nutritional Factors on Cellulase Enzyme and Microbial Protein Production by *Aspergillus terreus* and Its Evaluation, 109
—; Neelakantan, S.: Production of SCP and Cellulase by *Aspergillus terreus* from Bagasse Substrate, 2407
—; Neelakantan, S.: Studies on the Properties of Cellulase Enzyme from *Aspergillus terreus* GN1 (Communication), 737
Gemeiner, P.
—; Breier, A.: Aldehydic Derivatives of Bead Cellulose—Relationships between the Matrix Structure and Function in Immobilization of Enzymes Catalyzing Hydrolysis of High Molecular Substrates, 2573
Ghim, Y. S. See Chang, H. N., 1929
Ghommidh, C.
—; Navarro, J. M.; Durand, G.: A Study of Acetic Acid Production by Immobilized *Acetobacter* Cells: Oxygen Transfer, 605
—; Navarro, J. M.; Messing, R. A.: A Study of Acetic Acid Production by Immobilized *Acetobacter* Cells: Product Inhibition Effects, 1991
Ghose, T. K. See Bandyopadhyay, K. K., 805; Ghosh, V. K., 241; Mishra, S., 251; Tyagi, R. D., 781
—; Bandyopadhyay, K. K.: Studies on Immobilized *Saccharomyces cerevisiae*. II. Effect of Temperature Distribution on Continuous Rapid Ethanol Formation in Molasses Fermentation, 797
Ghosh, V. K.
—; Ghose, T. K.; Gopalkrishnan, K. S.: Improvement of *T. reesei* Strain through Mutation and Selective Screening Techniques (Communication), 241
Gibbons, W. R. See Westby, C. A., 1681
Gil, M. H. See Beddows, C. G., 1371
Goldberg, I. See Samuelov, N., 731, 2605
Goldman, J. C.
—; Dennett, M. R.; Riley, C. B.: Effect of Nitrogen-Mediated Changes in Alkalinity on pH Control and CO_2 Supply in Intensive Microalgal Cultures, 619
Goldstein, W. E. See Verhoff, F. H., 703
Goma, G. See Minier, M., 1565
Gong, C. S. See Taylor, F., 317
Gopalkrishnan, K. S. See Ghosh, V. K., 241; Mishra, S., 251
Gordon, S. L. See Osborn, J. A., 1653
Gottschal, J. C.
—; Thingstad, T. F.: Mathematical Description of Competition between Two and Three Bacterial Species under Dual Substrate Limitation in the Chemostat: A Comparison with Experimental Data, 1403
Gottvaldova, M. See Skachova, H., 2695
Gough, D. A. See Leypoldt, J. K., 2705
Grady, C. P. L., Jr. See Daigger, G. T., 1427
Gray, P. P. See Vu-Trong, K., 1093
Green, M. L. See Chaplin, B., 2627
Gupta, A. K. See Shirkot, C. K., 1233
Gupta, K. G. See Shirkot, C. K., 1233
Guthke, R.
—; Knorre, W. A.: Efficiency of the Cyclic Batch Antibiotic Fermentation, 2129
Guthrie, J. T. See Beddows, C. G., 1371
Gutmann, J. L. See Jefferies, S. R., 1327
Gutnick, D. See Zosim, Z., 281

Haggstrom, M. See Dostalek, M., 2077
Halasz, L. See Hasko, F., 1931
Hall, R. J. See Brooks, J. D., 847
Hamer, G.
Recycle in Fermentation Processes, 511
Hammons, J. L.
—; Coleman, G. N.: Stability Studies of Immobilized Enzyme Stir Rods, 1773
Han, M. H. See Park, J. M., 1623, 2215
Handa, T.
—; Hirose, A.; Yoshida, S.; Tsuchiya, H.: The Effect of Methylacrylate on the Activity of Glucoamylase Immobilized on Granular Polyacrylonitrile, 1639
Hardt, H.
—; Lamport, D. T. A.: Hydrogen Fluoride Saccharification of Wood: Lignin Fluoride Content, Isolation of α-D-Glucopyranosyl Fluoride and Posthydrolysis of Reversion Products, 903
Harris, I. J. See Chiam, H. F., 37
Harrison, D. See Cashion, P., 403, 1221
Hartenstein, R.
Metabolic parameters of the Earthworm *Eisenia foetida* in Relation to Temperature, 1803
Hashimoto, A. G.
Effect of Mixing Duration and Vacuum on Methane Production Rate from Beef Cattle Waste, 9
Methane from Cattle Waste: Effects of Temperature, Hydraulic Retention Time, and Influent Substrate Concentration on Kinetic Parameter (*K*), 2039

Hashimoto, S.
—; Fujita, M.; Terai, K.: Stabilization of Waste-Activated Sludge Through the Anoxic–Aerobic Digestion Process, 1789
Hasko, F.
—; Vaszileva, R.; Halasz, L.: Solubility of Plasma Proteins in the Presence of Polyethylene Glycol, 1931
Hayashi, K. See Miki, M., 2587
Hayashi, T. See Tanaka, Y., 857
Hayes, D. See Duvnjak, Z., 2297
Heertjes, P. M. See Buijs, C., 1975
—; Kuijvenhoven, L. J.; van der Meer, R. R.: Fluid Flow Pattern in Upflow Reactors for Anaerobic Treatment of Beet Sugar Factory Wastewater, 443
Hennigan, P. J. See Rolf, M. J., 1191
Herman, A. See Detroy, R. W., 1105
Hess, J. E. See Solomon, B. O., 633
Hettwer, D. J. See Wang, H. Y., 1827
Heywood-Waddington, D. See Bell, D. J., 127
Higashide, F. See Nozawa, Y., 753, 2765
Hillen, L. W.
—; Pollard, G.; Wake, L. V.; White, N.: Hydrocracking of the Oils of *Botryococcus braunii* to Transport Fuels, 193
Hirose, A. See Handa, T., 1639
Hoare, M. See Bell, D. J., 127; Virkar, P. D., 871
Hols, H. See van Suijdam, J. C., 177
Hong, J.
—; Voloch, M.; Ladisch, M. R.; Tsao, G. T.: Adsorption of Ethanol–Water Mixtures by Biomass Materials (Communication), 725
Hultin, H. O. See Bouin, J. C., 1225
Humphrey, A. E. See Meyer, H.-P., 1901
Hustedt, H. See Kroner, K. H., 1015

Ianniello, R. M. See Osborn, J. A., 1653
Imanaka, T. See Dwivedi, C. P., 1465
Itoh, T. See Yamaguchi, R., 1081
Izumoto, E. See Dairaku, K., 2661
Izumrudov, V. A. See Margolin, A. L., 237

Janolino, V. G.
—; Swaisgood, H. E.: Analysis and Optimization of Methods Using Water-Soluble Carbodiimide for Immobilization of Biochemicals to Porous Glass, 1069
Javed, A. See Cashion, P., 403, 1221
Jefferies, S. R.
—; Gutmann, J. L.: A Collagen–Alkaline Phosphatase Conjugate Membrane: Enzymatic Kinetics and *In-Vitro* Stability, 1327
Jurasek, L. See Pilon, L., 2063

Kaetsu, I. See Kamakura, M., 991
Kai, M. See Kusunoki, K., 347
Kalter, S. S. See Weiss, S. A., 1145, 2766
Kalthod, D. G. See Ruckenstein, E., 2357
—; Ruckenstein, E.: Immobilized Enzymes: Electrokinetic Effects on Reaction Rates under External Diffusion, 2189
Kamakura, M.
—; Kaetsu, I.: Radiation Degradation and the Subsequent Enzymatic Hydrolysis of Waste Papers (Communication), 991
Kamibayashi, A. See Yamazaki, Y., 1915
Kanayama, K. See Sawa, Y., 305
Kaneko, T. See Yamaguchi, R., 1081
Kappeli, O.
—; Fiechter, A.: Growth of *Trichosporon cutaneum* under Oxygen Limitation: Kinetics of Oxygen Uptake, 2519
Karanth, N. G. See Patwardhan, V. S., 763
Comments on Webster's Remarks on Effect of Internal Diffusion Resistances on the Lineweaver–Burk Plot (Communication), 979
—; Patwardhan, V. S.: Film Resistances in Packed-Bed Immobilized Enzyme Reactors: A Reassessment of the Kinetic Plots (Communication), 2269
Kargi, F.
Enhancement of Microbial Removal of Pyritic Sulfur from Coal Using Concentrated Cell Suspension of *T. ferrooxidans* and an External Carbon Dioxide Supply (Communication), 749
—; Robinson, J. M.: Microbial Desulfurization of Coal by Thermophilic Microorganism *Sulfolobus acidocaldarius* (Communication), 2115
Kato, K. See Kusunoki, K., 347
Katoh, S. See Sada, E., 1135, 2279
Kaul, R. See D'Souza, S. F., 1701
Kaushik, K. See Vieth, W. R., 1455
Kawakami, K. See Kusunoki, K., 347
Kawashima, K. See Tanaka, Y., 857
Keller, L.
—; Murr, L. E.: Acid-Bacterial and Ferric Sulfate Leaching of Pyrite Single Crystals, 83
Kelsey, R. G. See Neilson, M. J., 293
Kent, C. A. See Duddridge, J. E., 153, 1930
Khummongkol, D.
—; Canterford, G. S.; Fryer, C.: Accumulation of Heavy Metals in Unicellular Algae, 2643
Kierstan, M.
—; Darcy, G.; Reilly, J.: Studies on the Characteristics of Alginate Gels in Relation to Their Use in Separation and Immobilization Applications, 1507
The Enzymic Conversion of Ethanol to Acetaldehyde as a Model Recovery System (Communication), 2275
—; McHale, A.; Coughlan, M. P.: The Production of Ethanol from Cellobiose Using Immobilized β-Glucosidase Coentrapped with Yeast in Alginate Gels (Communication), 1461
Kim, C.
—; Kim, H. S.; Ryu, D. D. Y.: Optimization of Operating Temperature for Continuous Glucose Isomerase Reactor System (Communication), 1889
Kim, H. S. See Kim, C., 1889
—; Ryu, D. D. Y.: Continuous Glutamate Production Using an Immobilized Whole-Cell System, 2167
Kleinstreuer, C.
—; Poweigha, T.: Dynamic Simulator for Anaerobic Digestion Processes, 1941

Klibanov, A. M. See Maneepun, S., 483
—; Alberti, B. N.; Zale, S. E.: Enzymatic Synthesis of Formic Acid from H_2 and CO_2 and Production of Hydrogen from Formic Acid, 25
Kliza, S. See Duvnjak, Z., 2297
Knorre, W. A. See Guthke, R., 2129
Kobayashi, K. See Miki, M., 2587
Kobayashi, T. See Miyama, H., 2757
Kokufuta, E.
—; Matsumoto, W.; Nakamura, I.: Immobilization of *Nitrosomonas europaea* Cells with Polyelectrolyte Complex, 1591
Komemushi, S. See Miura, Y., 1173
Konig, B.
—; Schugerl, K.; Seewald, C.: Strategies for Penicillin Fermentation in Tower–Loop Reactors, 259
Kosaric, N. See Duvnjak, Z., 165, 2297
—; Ong, S. L.; Duvnjak, Z.: Fuel Alcohol Biosynthesis by *Zymomonas anaerobia*: Optimization Studies, 691
Kossen, N. W. F. See Esener, A. A., 1445, 1749, 1877; van Suijdam, J. C., 177
Kovar, J.
—; Navratilova, M.; Skursky, L.; Drobnik, J.; Svec, F.: Immobilization of Horse Liver Alcohol Dehydrogenase on Copolymers of Glycidyl Methacrylate and Ethylene Dimethacrylate, 837
Kroner, K. H.
—; Hustedt, H.; Kula, M.-R.: Evaluation of Crude Dextran as Phase-Forming Polymer for the Extraction of Enzymes in Aqueous Two-Phase Systems in Large Scale, 1015
Kucera, J. See Skachova, H., 2695
Kudlvasrova, H. See Drobnik, J., 487
Kuijvenhoven, L. J. See Heertjes, P. M., 443
Kula, M.-R. See Kroner, K. H., 1015
Kurtzman, C. P. See Slininger, P. J., 371
Kusunoki, K.
—; Kawakami, K.; Shiraishi, F.; Kato, K.; Kai, M.: A Kinetic Expression for Hydrolysis of Soluble Starch by Glucoamylase, 347
Kvesitadze, G. I.
—; Dvali, M. Sh.: Immobilization of Mold and Bacterial Amylases on Silica Carriers, 1765

Labsky, J. See Drobnik, J., 487
Ladisch, M. R. See Hong, J., 725
Laidler, K. J. See Mazid, M. A., 2087
Lalchev, Z.
—; Dimitrova, L.; Tzvetkova, P.; Exerowa, D.: Foam Separation of DNA and Proteins from Solutions, 2253
Lamport, D. T. A. See Hardt, H., 903
Landis, D. A. See Chang, H. N., 1929
Larsen, V. F. See Boening, P. H., 2539
Laudermilch, A. See Mitra, G., 1925
Lavayre, J.
—; Baratti, J.: Preparation and Properties of Immobilized Lipases (Communication), 1007
—; Verrier, J.; Baratti, J.: Stereospecific Hydrolysis by Soluble and Immobilized Lipases, 2175
Laws, J. F. See Duddridge, J. E., 153, 1930
Lawson, J. W. See Stutzenberger, F. J., 999
Leao, C.
—; van Uden, N.: Effects of Ethanol and Other Alkanols on the Kinetics and the Activation Parameters of Thermal Death in *Saccharomyces cerevisiae*, 1581
—; van Uden, N.: Effects of Ethanol and Other Alkanols on the Glucose Transport System of *Saccharomyces cerevisiae* (Communication), 2601
LeDuy, A. See Samson, R., 1919
Lee, S. B. See Ryu, D. D. Y., 1047
—; Shin, H. S.; Ryu, D. D. Y.; Mandels, M.: Adsorption of Cellulase on Cellulose: Effect of Physicochemical Properties of Cellulose on Adsorption and Rate of Hydrolysis, 2137
Lee, Y.-H. See Fireoved, R. L., 2109
—; Fan, L. T.: Kinetic Studies of Enzymatic Hydrolysis of Insoluble Cellulose: Analysis of the Initial Rates, 2383
Lee, Y.-K.
—; Pirt, S. J.: Maximum Photosynthetic Efficiency of Biomass Growth: A Criticism of Some Measurements (Communication), 507
Lehmann, J. See Luttmann, R., 1851
Lelieveld, H. L. M.
The Use of Continuous Cultures for Selection and Isolation of Microorganisms Producing Extracellular Enzymes Adapted to Extreme Environments, 1419
Lema, J. M. See Santin, J. L., 2721
Lentini, V. See Cashion, P., 403, 1221
Leupold, G. See Shamala, T. R., 1183, 1287, 1301
Levitin, N. See Saddler, J. N., 1389
Lewis, C. See Tolbert, W. R., 1671
Leypoldt, J. K.
—; Gough, D. A.: Diffusion and the Limiting Substrate in Two-Substrate Immobilized Enzyme Systems, 2705
Lilly, M. D. See Vardar, F., 1711
Lim, H. C. See Rolf, M. J., 1191
Liou, J. K. See Luyben, K. Ch. A. M., 533
Liu, C. C. See Chen, A. K., 971
Ljunggren, B. See Berg, T. G. O., 2739
Loureiro, V.
—; van Uden, N.: Effects of Ethanol on the Maximum Temperature for Growth of *Saccharomyces cerevisiae*: A Model (Communication), 1881
Lundblad, J. L. See Mitra, G., 97, 1925
Lupo, D. See Fennington, G., 2487
Luttmann, R.
—; Buchholz, H.; Zakrzewski, W.; Schugerl, K.: Identification of Mass-Transfer Parameters and Process Simulation of SCP Production Processes in Airlift Tower Reactors with an External Loop, 817
—; Thoma, M.; Buchholz, H.; Lehmann, J.; Schugerl, K.: Process Optimization of a Continuous Airlift Tower–Loop Reactor, 1851

Luyben, K. Ch. A. M.
—; Liou, J. K.; Bruin, S.: Enzyme Degradation during Drying, 533
—; Tramper, J.: Optimal Design for Continuous Stirred Tank Reactors in Series Using Michaelis–Menten Kinetics (Communication), 1217

Maclennan, D. G. See Brooks, J. D., 847
Macy, C. F. See Ryu, D. D. Y., 1047; Tassinari, T. H., 1495
Maeda, H. See Yamazaki, Y., 1915
Maier, W. J. See Papanastasiou, A. C., 2001
Majumdar, S. K. See Banerjee, M., 1839
Malikkides, C. O.
—; Weiland, R. H.: On The Mechanism of Immobilized Glucose Oxidase Deactivation by Hydrogen Peroxide, 2419
—; Weiland, R. H.: On the Thermal Denaturation of Glucose Oxidase (Communication), 1911
Mandels, M. See Lee, S. B., 2137
Maneepun, S.
—; Klibanov, A. M.: Stabilization of Microbial Proteases against Autolysis Using Acylation with Dicarboxylic Acid Anhydrides (Communication), 483
Mann, D. See Shirkot, C. K., 1233
Margaritis, A.
—; Bajpai, P.: Continuous Ethanol Production From Jerusalem Artichoke Tubers. I. Use of Free Cells of *Kluyveromyces marxianus*, 1473
—; Bajpai, P.: Continuous Ethanol Production from Jerusalem Artichoke Tubers. II. Use of Immobilized Cells of *Kluyveromyces marxianus*, 1483
—; Bajpai, P.: Ethanol Production from Jerusalem Artichoke Tubers (*Helianthus tuberosus*) Using *Kluyveromyces marxianus* and *Saccharomyces rosei*, 941
Margolin, A. L.
—; Izumrudov, V. A.; Svedas, V. K.; Zezin, A. B.: Soluble–Insoluble Immobilized Enzymes (Communication), 237
Markl, H. See Bronnenmeier, R., 553
Matsumoto, W. See Kokufuta, E., 1591
Matsuo, T. See Nagase, M., 2227
Matsushita, T. See Nozawa, Y., 753, 2765
Matsuura, I. See Furusaki, S., 1211
Mazid, M. A.
—; Laidler, K. J.: Kinetics of Yeast Alcohol Dehydrogenase and its Coenzyme Coimmobilized in a Tubular Flow Reactor, 2087
McCarty, P. L. See Rittmann, B. E., 2291
McGhee, J. E. See Slininger, P. J., 2241
—; St. Julian, G.; Detroy, R. W.; Bothast, R. J.: Ethanol Production by Immobilized *Saccharomyces cerevisiae*, *Saccharomyces uvarum*, and *Zymomonas mobilis*, 1155
McHale, A. See Kierstan, M., 1461
Mehta, A. P. See Murr, L. E., 743, 2293
—; Murr, L. E.: Kinetic Study of Sulfide Leaching by Galvanic Interaction between Chalcopyrite, Pyrite, and Sphalerite in the Presence of *T. ferrooxidans* (30°C) and a Thermophilic Microorganism (55°C), 919
Messing, R. A. See Ghommidh, C., 1991
Immobilized Microbes and a High-Rate, Continuous Waste Processor for the Production of High Btu Gas and the Reduction of Pollutants, 1115
Meyer, H.-P.
—; Humphrey, A. E.: Cellulase Production by a Wild and a New Mutant Strain of *Thermomonospora* sp. (Communication), 1901
—; Charles, M.: Cultivation of a Filamentous Bacterium in a Deep Jet Fermentor (Communication), 1905
Miki, M.
—; Kobayashi, K.; Hayashi, K.; Tamura, M.: Immobilization of Hemoglobin by Radiation-Induced Polymerization (Communication), 2587
Minier, M.
—; Goma, G.: Ethanol Production by Extractive Fermentation, 1565
Minkevich, I. G. See Eroshin, V. K., 2263
Mishra, S.
—; Gopalkrishnan, K. S.; Ghose, T. K.: A Constitutively Cellulase-Producing Mutant of *Trichoderma reesei* (Communication), 251
Mitra, G.
—; Ng, P.; Laudermilch, A.; Lundblad, J. L.: Kinetics of Heat Inactivation of Hepatitis B Virus-Associated DNA Polymerase (Communication), 1925
—; Schneider, P. M.; Lundblad, J. L.: Kinetics of Thermal Denaturation of Antithrombin III, 97
Miura, Y.
—; Yagi, K.; Shoga, M.; Miyamoto, K.: Hydrogen Production by a Green Alga, *Chlamydomonas reinhardtii*, in an Alternating Light/Dark Cycle, 1555
—; Okazaki, M.; Ohi, K.; Nishimura, T.; Komemushi, S.: Optimization of Biomass Productivity and Substrate Utility of a Hydrogen Bacterium, *Alcaligenes hydrogenophilus*, 1173
Miyai, K. See Sada, E., 1135
Miyama, H.
—; Kobayashi, T.; Nosaka, Y.: Immobilization of Urease on Synthetic Polymers (Communication), 2757
Miyamoto, K. See Miura, Y., 1555
Mohler, R. D. See Rolf, M. J., 1191
Mooyman, J. G. See Ashley, M. H. J., 1547
Moraine, R. See Azov, Y., 579
Morikawa, H. See Dairaku, K., 2661
Morrison, G. L. See Ramamurti, K., 2267
Murr, L. E. See Keller, L., 83; Mehta, A. P., 919
—; Mehta, A. P.: Coal Desulfurization by Leaching Involving Acidophilic and Thermophilic Microorganisms (Communication), 743
—; Mehta, A. P.: Coal Desulfurization by Leaching Involving Acidophilic and Thermophilic Microorganisms (Erratum), 2293
Mutharasen, R. See Fireoved, R. L., 2109
Myerson, A. S. See Chang, Y. C., 889

Naczk, M. See Synowiecki, J., 1871

Nadkarni, G. B. See D'Souza, S. F., 1701
Nagase, M.
—; Matsuo, T.: Interactions Between Amino-Acid-Degrading Bacteria and Methanogenic Bacteria in Anaerobic Digestion, 2227
Najita, I. Y. See Swift, S. T., 1953
Nakamura, I. See Kokufuta, E., 1591
Nakazato, S.-I. See Furusaki, S., 1211
Narendranathan, T. J.
—; Dunnill, P.: The Effect of Shear on Globular Proteins during Ultrafiltration: Studies of Alcohol Dehydrogenase (Communication), 2103
Navarro, J. M. See Ghommidh, C., 605, 1991
Navratilova, M. See Kovar, J., 837
Neelakantan, S. See Garg, S. K., 109, 737, 2407
Neilson, M. J.
—; Kelsey, R. G.; Shafizadeh, F.: Enhancement of Enzymatic Hydrolysis by Simultaneous Attrition of Cellulosic Substrates, 293
Neumann, P. J. See Pilon, L., 2063
Ng, P. See Mitra, G., 1925
Nguyen-Tien, K. See Deckwer, W.-D., 461
Nishimura, T. See Miura, Y., 1173
Nosaka, Y. See Miyama, H., 2757
Nozawa, Y.
—; Matsushita, T.; Yamashina, K.; Higashide, F.: Immobiization of Trypsin on Chitin and Chitosan by Solid-State Mix-Grinding (Communication), 753
—; Matsushita, T.; Yamashina, K.; Higashide, F.: Immobilization of Trypsin on Chitin and Chitosan by Solid-State Mix-Grinding (Erratum), 2765

Ochiai, H. See Sawa, Y., 305
Ohi, K. See Miura, Y., 1173
Ohtaguchi, K. See Swift, S. T., 1953
Okada, M.
—; Sudo, R.; Aiba, S.: Phosphorus Uptake and Growth of Blue–Green Alga, *Microcystis aeruginosa*, 143
Okazaki, M. See Miura, Y., 1173
Okrutny, M. S. See Wu, Y. C., 1813
Olivero, I.
—; Ruiz-Macias, C.; Chordi, A.; Peinado, J. M.: Effect of External pH on the Growth of *Saccharomyces cerevisiae* Fermenting Maltose in Batch and Continuous Culture (Communication), 2725
Ollis, D. F. See Chang, H.-T., 2309
—; Chang, H.-T.: Batch Fermentation Kinetics with (Unstable) Recombinant Cultures (Communication), 2583
Ong, S. L. See Kosaric, N., 691
Orr, T. See Weiss, S. A., 1145, 2766
Osborn, J. A.
—; Ianniello, R. M.; Wieck, H. J.; Decker, T. F.; Gordon, S. L.; Yacynych, A. M.: Use of Chemically Modified Activated Carbon as a Support for Immobilized Enzymes, 1653

Papanastasiou, A. C.
—; Maier, W. J.: Kinetics of Biodegradation of 2,4-Dichlorophenoxyacetate in the Presence of Glucose, 2001
Park, J. M.
—; Choi, C. Y.; Seong, B. L.; Han, M. H.: Effect of Mass Transfer in a Recirculation Batch Reactor System for Immobilized Penicillin Amidase, 2215
—; Choi, C. Y.; Seong, B. L.; Han, M. H.: The Production of 6-Aminopenicillanic Acid by a Multistage Tubular Reactor Packed with Immobilized Penicillin Amidase, 1623
Park, Y. K.
—; Rivera, B. C.: Alcohol Production from Various Enzyme-Converted Starches with or without Cooking (Communication), 495
Pasta, P. See Carrea, G., 1
Patwardhan, V. S. See Karanth, N. G., 2269
—; Karanth, N. G.: Film Diffusional Influences on the Kinetic Parameters in Packed-Bed Immobilized Enzyme Reactors, 763
Pavlou, S. See Ratnam, D. A., 2675
Peinado, J. M. See Olivero, I., 2725
Phillips, C. R. See Tseng, M. M-C., 1319
Pifferi, P. G.
—; Vaccari, A.; Ricci, G.; Poli, G.; Ruggeri, O.: Stability of Glucose Oxidase and Catalase Adsorbed on Variously Activated 13X Zeolite, 2155
Pilon, L.
—; Barbe, M. C.; Desrochers, M.; Jurasek, L.; Neumann, P. J.: Fungal Treatment of Mechanical Pulps—Its Effect on Paper Properties, 2063
Piotrzkowska, H. See Synowiecki, J., 1871
Pirt, S. J. See Lee, Y.-K., 507
Podrazky, V. See Skachova, H., 2695
Poli, G. See Pifferi, P. G., 2155
Pollard, G. See Hillen, L. W., 193
Poweigha, T. See Kleinstreuer, C., 1941
Powell, M. S.
—; Slater, N. K. H.: Removal Rates of Bacterial Cells from Glass Surfaces by Fluid Shear, 2527

Raetz, E. See Flaschel, E., 2499
Ram, K. A.
—; Venkatasubramanian, K.: Enhancement of Starch Conversion Efficiency with Free and Immobilized Pullulanase and α-1,4-Glucosidase, 355
Ramamurti, K.
—; Morrison, G. L.; Crumpton, C. F.: Cellulose Formation by *Acetobacter acetigenum* in a 50% (w/v) Glycerol Synthetic Medium (Communication), 2267
Ratnam, D. A.
—; Pavlou, S.; Fredrickson, A. G.: Effects of Attachment of Bacteria to Chemostat Walls in a Microbial Predator–Prey Relationship, 2675
Ratomahenina, R. See Blondin, B., 2031
Reddy, P. G.
—; Singh, H. D.; Roy, P. K.; Baruah, J. N.: Predominant Role of Hydrocarbon Solubilization in the Microbial Uptake of Hydrocarbons, 1241

Reilly, J. See Kierstan, M., 1507
Reilly, P. J. See Chang, H. N., 1929
Renken, A. See Flaschel, E., 2499
Rhee, J. S. See Choi, S. Y., 1165
Ricci, G. See Pifferi, P. G., 2155
Riley, C. B. See Goldman, J. C., 619
Rittmann, B. E.
Comparative Performance of Biofilm Reactor Types, 1341
—; McCarty, P. L.: Model of Steady-State-Biofilm Kinetics (Erratum), 2291
The Effect of Shear Stress on Biofilm Loss Rate (Communication), 501
Rivera, B. C. See Park, Y. K., 495
Robinson, J. M. See Kargi, F., 2115
Roels, J .A. See Esener, A. A., 1445, 1749, 1877
Rolf, M. J.
—; Hennigan, P. J.; Mohler, R. D.; Weigand, W. A.; Lim, H. C.: Development of a Direct Digital-Controlled Fermentor Using a Microminicomputer Hierarchical System, 1191
Rosenberg, E. See Zosim, Z., 281
Roy, P. K. See Reddy, P. G., 1241
Ruckenstein, E. See Kalthod, D. G., 2189
—; Kalthod, D. G.: Immobilized Enzymes: Electrokinetic Effects on Reaction Rates in a Porous Medium, 2357
Ruggeri, O. See Pifferi, P. G., 2155
Ruiz-Macias, C. See Olivero, I., 2725
Ryu, D. D. Y. See Choi, S. Y., 1165; Kim, C., 1889; Kim, H. S., 2167; Lee, S. B., 2137
—; Lee, S. B.; Tassinari, T. H.; Macy, C. F.: Effect of Compression Milling on Cellulose Structure and on Enzymatic Hydrolysis Kinetics, 1047

Sada, E.
—; Katoh, S.; Miyai, K.; Terashima, M.; Yoshida, S.: Diffusive and Hydraulic Transfer of Solutes through Homogeneous Membranes, 1135
—; Katoh, S.; Shiozawa, M.: Effects of Cylindrical Baffles on the Performance of Affinity Columns (Communication), 2279
Saddler, J. N.
—; Brownell, H. H.; Clermont, L. P.; Levitin, N.: Enzymatic Hydrolysis of Cellulose and Various Pretreated Wood Fractions, 1389
Saguy, I.
Utilization of the "Complex Method" to Optimize a Fermentation Process, 1519
St. Julian, G. See McGhee, J. E., 1155
Samson, R.
—; LeDuy, A.: Biogas Production from Anaerobic Digestion of *Spirulina maxima* Algal Biomass (Communication), 1919
Samuelov, N.
—; Goldberg, I.: Effect of Growth Conditions on the Distribution of Methanol Carbon Between Assimilation and Oxidation Pathways in *Pseudomonas* C (Communication), 731
—; Goldberg, I.: Is *Pseudomonas* C an Obligate or Facultative Methylotroph? (Communication), 2605
Santin, J. L.
—; Sola, C.; Lema, J. M.: Substrate and Product Inhibition Significance in the Kinetics of Sucrose Hydrolysis by Invertase (Communication), 2721
Sathe, G. See Cashion, P., 403
Saudek, V. See Drobnik, J., 487
Sawa, Y.
—; Kanayama, K.; Ochiai, H.: Photosynthetic Regeneration of ATP Using a Strain of Thermophilic Blue–Green Algae, 305
Schneider, P. M. See Mitra, G., 97
Schoenfeld, R. A. See Tolbert, W. R., 1671
Schugerl, K. See Konig, B., 259; Luttmann, R., 817, 1851
Schumpe, A. See Deckwer, W.-D., 461
Seeley, J. See Cashion, P., 403
Seewald, C. See Konig, B., 259
Seong, B. L. See Park, J. M., 1623, 2215
Serpemen, Y. See Deckwer, W.-D., 461
Shafizadeh, F. See Neilson, M. J., 293
Shahani, K. M. See Friend, B. A., 329
Shamala, T. R.
—; Drawert, F.; Leupold, G.; Becker, W.: Studies on *Scenedesmus acutus* Growth. The Incorporation of ^{14}C-Glucose by *Scenedesmus acutus* under Light and Dark Periods, 1183
—; Drawert, F.; Leupold, G.: Studies on *Scenedesmus acutus* Growth. I. Effect of Autotrophic and Mixotrophic Conditions on the Growth of *Scenedesmus acutus*, 1287
—; Drawert, F.; Leupold, G.: Studies on *Scenedesmus acutus* Growth. II. Effect of Autotrophic and Mixotrophic Growth on the Amino Acid and the Carbohydrate Composition of *Scenedesmus acutus*, 1301
Shelef, G. See Azov, Y., 579
Shieh, W. K.
Intrafloc Mass Transfer Effect on the Lineweaver–Burk Plot (Communication), 977
—; Chen, C. Y.; Chang, S. D.: Preliminary Study of a Suspended Growth Predenitrification System, 2557
Shimizu, S. See Yamane, T., 2731
Shin, H. S. See Lee, S. B., 2137
Shioya, S. See Dairaku, K., 2661
Shiozawa, M. See Sada, E., 2279
Shiraishi, F. See Kusunoki, K., 347
Shirkot, C. K.
—; Mann, D.; Dhawan, S.; Gupta, A. K.; Gupta, K. G.: Effect of Dithiocarbamates on Cellulase Activity in Culture Filtrates of *Trichoderma reesei*, 1233
Shoga, M. See Miura, Y., 1555
Sikorski, Z. E. See Synowiecki, J., 1871
Simard, R. E. See Wasungu, K. M., 1125
Singh, H. D. See Reddy, P. G., 1241
Skachova, H.
—; Gottvaldova, M.; Kucera, J.; Podrazky, V.: The Effect of the Oxygen Transfer Rate (OSR) on the Formation of Cellulases by *Trichoderma viride* in Submersion Culture, 2695

Skursky, L. See Kovar, J., 837
Slater, N. K. H. See Powell, M. S., 2527
Slininger, P. J.
—; Bothast, R. J.; Black, L. T.; McGhee, J. E.: Continuous Conversion of D-Xylose to Ethanol by Immobilized *Pachysolen tannophilus*, 2241
—; Bothast, R. J.; Van Cauwenberge, J. E.; Kurtzman, C. P.: Conversion of D-Xylose to Ethanol by the Yeast *Pachysolen tannophilus*, 371
Smith, G. C. See Weiss, S. A., 1145, 2766
Sola, C. See Santin, J. L., 2721
Solomon, B. O.
—; Erickson, L. E.; Hess, J. E.; Yang, S. S.: Maximum Likelihood Estimation of Growth Yields, 633
Sonnleitner, B.
—; Cometta, S.; Fiechter, A.: Equipment and Growth Inhibition of Thermophilic Bacteria (Communication), 2597
Spano, L. A. See Tassinari, T. H., 1495
Spier, R. E. See Whiteside, J. P., 245
Spriet, J. A.
—; Botterman, J.; De Buyser, D. R.; De Visscher, P. L.; Vandamme, E. J.: A Computer-Aided Noninterfering On-Line Technique for Monitoring Oxygen-Transfer Characteristics during Fermentation Processes, 1605
Starzmann, J. A. See Chen, A. K., 971
Stutzenberger, F. J. See Fennington, G., 2487
—; Lawson, J. W.: Assay of Proteolytic Activity by Ultrafiltration (Communication), 999
Sudo, R. See Okada, M., 143
Svec, F. See Drobnik, J., 487; Kovar, J., 837
Svedas, V. K. See Margolin, A. L., 237
Swaisgood, H. E. See Janolino, V. G., 1069
Swift, S. T.
—; Najita, I. Y.; Ohtaguchi, K.; Fredrickson, A. G.: Continuous Culture of the Ciliate *Tetrahymena pyriformis* on *Escherichia coli*, 1953
Synowiecki, J.
—; Sikorski, Z. E.; Naczk, M.; Piotrzkowska, H.: Immobilization of Enzymes on Krill Chitin Activated by Formaldehyde (Communication), 1871

Takamatsu, T. See Dairaku, K., 2661
Tamura, M. See Miki, M., 2587
Tanaka, H.
—; Dunn, I. J.: Kinetics of Biofilm Nitrification, 669
Oxygen Transfer in Broths of Plant Cells at High Density, 425
Some Properties of Pseudocells of Plant Cells (Communication), 2591
Tanaka, Y.
—; Hayashi, T.; Kawashima, K.; Yokoyama, T.; Watanabe, T.: Production of NADP by Immobilized Cells with NAD Kinase, 857
Tassinari, T. H. See Ryu, D. D. Y., 1047
—; Macy, C. F.; Spano, L. A.: Technology Advances for Continuous Compression Milling Pretreatment of Lignocellulosics for Enzymatic Hydrolysis, 1495
Taylor, F.
—; Chen, L.; Gong, C. S.; Tsao, G. T.: Kinetics of Immobilized Sucrose Phosphorylase, 317
Terai, K. See Hashimoto, S., 1789
Terashima, M. See Sada, E., 1135
Thingstad, T. F. See Gottschal, J. C., 1403
Thoma, M. See Luttmann, R., 1851
Toda, K.
—; Dunn, I. J.: Continuous Culture in Combined Backmix–Plug-Flow–Tubular-Loop Fermentor Configurations, 651
—; Dunn, I. J.: Continuous Culture in Combined Backmix–Plug-Flow–Tubular-Loop Fermentor Configurations (Erratum), 2292
Tolbert, W. R.
—; Schoenfeld, R. A.; Lewis, C.; Feder, J.: Large-Scale Mammalian Cell Culture: Design and Use of an Economical Batch Suspension System, 1671
—; Feder, J.: Sterile Air-Shielded Connectors for Aseptic Operations (Communication), 1885
Tramper, J. See Luyben, K. Ch. A. M., 1217
Tsao, G. T. See Hong, J., 725; Taylor, F., 317
Tseng, M. M-C.
—; Phillips, C. R.: The Kinetics of Yeast Growth and Nicotinic Acid Production, 1319
Tsezos, M.
—; Volesky, B.: The Mechanism of Thorium Biosorption by *Rhizopus arrhizus*, 955
—; Volesky, B.: The Mechanism of Uranium Biosorption by *Rhizopus arrhizus*, 385
Tsuchiya, H. See Handa, T., 1639
Tyagi, R. D.
—; Ghose, T. K.: Studies on Immobilized *Saccharomyces cerevisiae*. I. Analysis of Continuous Rapid Ethanol Fermentation in Immobilized Cell Reactor, 781
Tzvetkova, P. See Lalchev, Z., 2253

Vaccari, A. See Pifferi, P. G., 2155
Van Cauwenberge, J. E. See Slininger, P. J., 371
Vandamme, E. J. See Spriet, J. A., 1605
Van Der Meer, R. R. See Buijs, C., 1975; Heertjes, P. M., 443
van Suijdam, J. C.
—; Hols, H.; Kossen, N. W. F.: Unstructured Model for Growth of Mycelial Pellets in Submerged Cultures, 177
van Uden, N. See Anacleto, J., 2477; Leao, C., 1581, 2601; Loureiro, V., 1881
Vardar, F.
—; Lilly, M. D.: The Measurement of Oxygen-Transfer Coefficients in Fermentors by Frequency Response Techniques (Communication), 1711
Vasiliev, V. B.
—; Vavilin, V. A.: Activated Sludge System Design for Large Variations of Organic Loading, 2337
Vaszileva, R. See Hasko, F., 1931

Vaughn, J. L. See Weiss, S. A., 1145, 2766
Vavilin, V. A. See Vasiliev, V. B., 2337
The Effects of Temperature, Inlet Pollutant Concentration, and Microorganism Concentration on the Rate of Aerobic Biological Treatment, 2609
The Theory and Design of Aerobic Biological Treatment, 1721
Veerman, T. See Esener, A. A., 1749
Venkatasubramanian, K. See Ram, K. A., 355; Vieth, W. R., 1455
Verhoff, F. H.
—; Goldstein, W. E.: Diffusion Resistance and Enzyme Activity Decay in a Pellet, 703
Verrier, J. See Lavayre, J., 2175
Vieth, W. R.
—; Kaushik, K.; Venkatasubramanian, K.: Active Transport of Inducer in Enzyme Biosynthesis (Communication), 1455
Virkar, P. D.
—; Hoare, M.; Chan, M. Y. Y.; Dunnill, P.: Kinetics of the Acid Precipitation of Soya Protein in a Continuous-Flow Tubular Reactor, 871
Volesky, B. See Tsezos, M., 385, 955
Voloch, M. See Hong, J., 725
Vu-Trong, K.
—; Gray, P. P.: Continuous-Culture Studies on the Regulation of Tylosin Biosynthesis, 1093

Wake, L. V. See Hillen, L. W., 193
Wang, H. Y.
—; Hettwer, D. J.: Cell Immobilization in κ-Carrageenan with Tricalcium Phosphate, 1827
Wasungu, K. M.
—; Simard, R. E.: Growth Characteristics of Bakers' Yeast in Ethanol, 1125
Watanabe, T. See Tanaka, Y., 857
Webster, I. A.
The Lineweaver–Burk Plot Intercept: Influence of Diffusion. Reply to N. G. Karanth and W. K. Shieh (Communication), 981
Weigand, W. A. See Rolf, M. J., 1191
Weiland, R. H. See Malikkides, C. O., 1911, 2419
Weiss, S. A.
—; Orr, T.; Smith, G. C.; Kalter, S. S.; Vaughn, J. L.; Dougherty, E. M.: Quantitative Measurement of Oxygen Consumption in Insect Cell Culture Infected with Polyhedrosis Virus, 1145
—; Orr, T.; Smith, G. C.; Kalter, S. S.; Vaughn, J. L.; Dougherty, E. M.: Quantitative Measurement of Oxygen Consumption in Insect Cell Culture Infected with Polyhedrosis Virus (Erratum), 2766
Westby, C. A.
—; Gibbons, W. R.: Farm-Scale Production of Fuel Ethanol and Wet Grain from Corn in a Batch Process, 1681
White, N. See Hillen, L. W., 193
Whiteside, J. P.
—; Barnett, I. T. R.; Doel, T. R.; Spier, R. E.: The Production and Use of Swine Vesicular Disease Virus from Pig Kidney Monolayer Cells Grown on the Surface of 3-mm-Diameter Glass Spheres (Communication), 245
Wieck, H. J. See Osborn, J. A., 1653
Wu, Y. C.
—; Okrutny, M. S.: Role of Phophorus in Activated Sludge, 1813

Yacynych, A. M. See Osborn, J. A., 1653
Yagi, K. See Miura, Y., 1555
Yamaguchi, R.
—; Arai, Y.; Kaneko, T.; Itoh, T.: Utilization of Partially *N*-Succinylated Derivatives of Chitosan and Glycolchitosan as Supports for the Immobilization of Enzymes, 1081
Yamane, T.
—; Shimizu, S.: The Minimum-Sized Ideal Reactor for Continuous Alcohol Fermentation Using Immobilized Microorganism (Communication), 2731
Yamashina, K. See Nozawa, Y., 753, 2765
Yamazaki, Y.
—; Maeda, H.; Kamibayashi, A.: The Long-Term Production of L-Malate by the Coimmobilized NAD and Dehydrogenases (Communication), 1915
Yang, S. S. See Solomon, B. O., 633
Yokoyama, T. See Tanaka, Y., 857
Yoshida, S. See Handa, T., 1639; Sada, E., 1135

Zajic, J. E. See Brosseau, J. D., 1469
Zakrzewski, W. See Luttmann, R., 817
Zale, S. E. See Klibanov, A. M., 25
Zall, R. R. See Zertuche, L., 57
Zenk, M. H. See Deus, B., 1965
Zertuche, L.
—; Zall, R. R.: A Study of Producing Ethanol from Cellulose Using *Clostridium thermocellum*, 57
Zezin, A. B. See Margolin, A. L., 237
Zosim, Z.
—; Gutnick, D.; Rosenberg, E.: Properties of Hydrocarbon-in-Water Emulsions Stabilized by *Acinetobacter* RAG-1 Emulsan, 281

Statement of Ownership, Management and Circulation
(Required by 39 U.S.C. 3685)

1. Title of publication: Biotechnology and Bioengineering
2. Date of filing: 15 September 1982
3. Frequency of publication: Monthly
   A. Number of issues published annually: 12
   B. Annual subscription price: $195.00
4. Complete mailing address of known office of publication: John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158
5. Complete mailing address of the headquarters or general business offices of the publishers: John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158
6. Publisher: John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158
   Editor: Elmer Gaden, Jr., Thornton Hall, University of Virginia, Charlottesville, VA 22903
   Managing Editor: None
7. Owner: John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158

   The following is a list of stockholders owning or holding 1% or more of John Wiley & Sons, Inc. stock as of July 1982: Cynthia W. Darby, Box 651, Bridgehampton, NY 11932; Hamilton Darby, Box 651, Bridgehampton, NY 11932; W. B. Wiley, W. B. Wiley II, P. B. Wiley and Deborah Wiley, Executors of the Estate of Edward P. Hamilton, c/o Gifford, Woody, Palmer & Searles, 14 Wall Street, New York, NY 10005; W. Bradford Wiley and Deborah Wiley, Trustees, Elizabeth W. Hamilton Trust, 605 Third Avenue, New York, NY 10158; Morgan Guaranty Trust and W. B. Wiley, Trustees under will of Elizabeth Wiley Hamilton, c/o Morgan Guaranty Trust Co., P.O. Box 491, Church St. Station, New York, NY 10008; Jenny R. Proskauer, P.O. Box 238, Church St. Station, New York, NY 10008; W. Bradford Wiley and Peter Booth Wiley, Trustees, f/b/o/ Deborah Elizabeth Wiley, c/o John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158; Cede & Co., Box 20, Bowling Green Station, New York, NY 10006; J. E. Orr & Co., Chemical Bank, P.O. Box 1368, Church St. Station, New York, NY 10008; W. Bradford Wiley and W. Bradford Wiley II, Trustees, f/b/o/ Peter Booth Wiley, 605 Third Avenue, New York, NY 10158; W. Bradford Wiley and Deborah Wiley, Trustees, f/b/o/ William Bradford Wiley II, c/o John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158; Hamilton D. Darby and Cynthia Wiley Darby, Trustees under will of William O. Wiley, c/o Gifford, Woody, Palmer & Searles, 14 Wall Street, New York, NY 10005; Adele E. Windheim, 8 Dundee Road, Larchmont, NY 10538; Mrs. Rosamond R. Pennywitt, 49 Bristol Place, Bay Head, NJ 08742; Morgan Guaranty Trust Company, 23 Wall Street, New York, NY 10015; W. Bradford Wiley, 605 Third Avenue, New York, NY 10158.

8. Known bondholders, mortgagees, and other security holders owning or holding one percent or more of the total amount of bonds, mortgages, or other securities: None
10. Extent and nature of circulation

	Average number of copies of each issue during preceding 12 months	Actual number of copies of single issue published nearest to filing date
A. Total number of copies	2100	2100
B. Paid circulation		
1. Sales through dealers and carriers, street vendors and counter sales	none	none
2. Mail subscriptions	1845	1830
C. Total paid circulation	1845	1830
D. Free distribution by mail, carrier or other means, samples, complimentary, and other free copies	32	32
E. Total distribution	1877	1862
F. Copies not distributed		
1. Office use, left over, unaccounted, spoiled after printing	223	238
2. Returns from news agents	none	none
G. Total	2100	2100

11. I certify that the statements made by me above are correct and complete.

Mary Curtis, *Publisher*

Subject Index to Volume XXIV

Acetaldehyde, enzymatic conversion of ethanol to, 2275(C)
Acetic acid, production by immobilized *Acetobacter*, 605
—, production by immobilized *Acetobacter* cells, 1991
Acetobacter, acetic acid production by, 605
—, immobilized, for acetic acid production, 1991
Acetobacter acetigenum, cellulose formation by, 2267(C)
Activated sludge, system design for, 2337
Adaption, physiological, and transient response of bacterial cultures, 1427
Affinity columns, performance of, 2279(C)
Alcaligenes hydrogenophilus, biomass productivity of, 1173
Alcohol dehydrogenase, horse liver, immobilized, 837
—, ultrafiltration of, 2103(C)
Algae, blue-green, 143, 305
—, metal accumulation by, 2643
Algal–bacterial interactions in biological waste treatment, 2283(C)
Algal cultures, pH control and CO_2 supply, 619
Alginate gels, for cell and enzyme immobilization, 1461(C)
—, for immobilization and separation, 1507
6-Aminopenicillanic acid, production by immobilized penicillin amidase, 1623
Amylases, mold and bacterial, immobilized, 1765
Anaerobic digestion, cattle waste, 9
—, interactions in, 2227
Anaerobic digestion processes, simulation of, 1941
Anaerobic fluidized beds, for treatment of whey, 2539
Antibiotic fermentation, cyclic batch, 2129
Antithrombin, thermal denaturation of, 97
Arthrobacter paraffineus, surfactant production by, 165
Asceptic operations, sterile connectors for, 1885(C)
Aspergillus oryzae, lactase from, 329
Aspergillus phoenicis, cellobiase production by, 2747(C)
Aspergillus terreus, cellulase and protein production by, 109
—, microbial protein and cellulase production by, 2407
Aspergillus terreus GN1, cellulase from, 737(C)
ATP, photosynthetic regeneration by blue–green algae, 305

Bacteria, filamentous, cultivation of, 1905(C)
—, thermophilic, growth inhibition of, 2597(C)
Beet sugar wastewater, anaerobic treatment of, 443
Biofilm kinetics, steady-state, 2291(E)
Biofilm reactors, performance of, 1341
Biofilms, bacterial, removal by fluid shear, 2527
—, on chemostat walls, 2675
—, effect of shear on loss rate, 501(C)
—, formation of, 2451
Biogas production, high-rate, by immobilized microorganisms, 1115
Biological reactors, laboratory-scale, measurement of feed rates to, 1451(C)
Biological waste treatment, activated sludge, 2337
—, activated sludge, stabilization of, 1789
—, aerobic, rates of, 2609
—, anaerobic, in upflow reactors, 1975
—, anaerobic, reactors for, 443
—, oxidation ponds, 579
—, see activated sludge
—, theory and design, 1721
Bioprocesses, optimization, 1519
Biosorption, of thorium, 955
—, of uranium, 385
Botryococcus braunii, hydrocracking of oils from, 193

Caldolysin, immobilized, 2053
Carbodiimide, for immobilization of biochemicals to glass, 1069
Carbon, activated, for enzyme immobilization, 1653
Carboxybpeptidase A, soluble conjugates of, 2627
Carrageenan, for cell immobilization, 1827
Catalase, adsorbed on zeolite, 2155
Cellobiase, production by *Aspergillus phoenicis*, 2747(C)
Cellobiose, fermentation by *Dekkera* strain, 2031
Cells, immobilized, 605, 781, 797, 805, 857, 1115, 1155, 1461(C), 1483, 1591, 1701(C), 1827, 1839, 1991, 2167

—, immobilized, ethanol production by, 2731(C)
—, iommobilized, 595
—, mammalian, large-scale culture of, 1671
Cellulase, adsorption on cellulose, 2137
—, from *Aspergillus terreus* GN1, 737(C)
—, production by *Aspergillus terreus*, 109, 2407
—, production by *Thermomonospora sp.*, 1901(C), 2487
Cellulase activity, effect of dithiocarbamates on, 1233
Cellulase production, effect of oxygen transfer on, 2695
Cellulose, aldehydic derivatives of, for enzyme immobilization, 2573
—, formation by *Acetobacter acetigenum*, 2267(C)
Cellulose hydrolysis, enzymatic, 2137
—, enzymatic, effect of milling on, 1047
—, enzymatic, enhancement of, 293
—, enzymatic, in pretreated woods, 1389
—, kinetics of, 2383
Centrifugal sedimentation, of proteins, 127
Chalcopyrite, leaching of, 919
Chemostat, and Blackman kinetics, 1705(C)
Chitin, for enzyme immobilization, 753(C), 1081, 1871(C)
Chitosan, for enzyme immobilization, 753(C), 1081
Chlamydomonas reinhardtii, hydrogen production by, 1555
Citrobacter intermedius, hydrogen production by, 1469(C)
Clostridium thermocellum, ethanol production by, 57
Coal, desulfurization and leaching, microbial, 743(C)
—, microbial desulfurization of, 2115(C)
—, sulfur removal by *T. ferrooxidans*, 749(C)
Coal desulfurization by microorganisms, 2293(E)
Competition between bacterial species, mathematical description of, 1403
Computer-aided monitoring, of oxygen transfer characteristics, 1605
Continuous cultivation, 651, 1093
—, instability in, 1465(C)
—, of *Aspergillus phoenicis*, 2747(C)
—, in tubular loop fermenter, 2292(E)
—, yeast, 2725(C)
Continuous culture, for enzyme production, 1419
Continuous culture equipment, 847
Continuous processes, ethanol production, 1473, 1483
Continuous reactor system, glucose isomerase, 1889(C)
Continuous sterilizers, design of, 1547
Continuous stirred tank reactors, optimal design of, 1217(C)
Copolymers, poly(acrylic acid)–polyethylene, for enzyme immobilization, 1371

2,4-D, biodegradation of, 2001
Dehydrogenases, coimmobilized with NAD, 1915(C)
—, immobilized, activity and stability, 1
Dekkera, cellobiose fermentation by, 2031
Dextran, soluble conjugates with pepsin and carboxypeptidase A, 2627
—, use in enzyme extraction, 1015
Diffusion, and enzyme activity on pellets, 703
DNA, foam separation from solutions, 2253

Earthworm, See *Eisenia foetida*
Egg white, for cell immobilization, 1701(C)
Eisenia foetida, metabolic parameters for, 1803
Electrokinetic effects, on immobilized enzymes, 2189, 2357
Emulsan, bacterial, and oil–water emulsions, 281
Enzyme biosynthesis, active transport of inducers in, 1455(C)
Enzymes, degradation during drying, 533
—, extracellular, production of, 1419
—, extraction, in two-phase systems, 1015
—, immobilized, 1, 207, 237(C), 317, 329, 355, 403, 753(C), 837, 857, 1007(C), 1081, 1221(C), 1371, 1527, 1623, 1639, 1653, 1765, 1773, 1871(C), 1915(C), 2053, 2189, 2215, 2357, 2573, 2705, 2757(C)
Errata, 1929, 1930, 2291, 2292, 2293, 2765, 2766
Escherichia coli, growth of *Tetrahymena pyriformis* on, 1953
—, plasmid-harboring strain, instability of, 1465(C)
Ethanol, continuous rapid fermentation, 781, 797
—, effects on glucose transport in yeast, 2601(C)
—, effects on yeast growth, 1881(C)
—, enzymatic conversion to acetaldehyde, 2275(C)
—, production by *Zymomonas mobilis*, 595, 691
—, production by immobilized cells, 1155
—, production from cellobiose, 1461(C)
—, production from cellulose, 57
—, production from enzyme-converted starches, 495(C)
—, production from Jerusalem artichoke, 941
—, production from xylose, 371
Ethanol production, by *Kluyveromyces marxianus*, 1473, 1483
—, continuous, 2731(C)
—, continuous, from xylose, 2241
—, by extractive fermentation, 1565
—, farm-scale, 1681
—, from Jerusalem artichoke, 1473, 1483
—, from Jerusalem artichokes, 2297
Ethanol–water mixtures, adsorption of, 725(C)

Fermenters, See Reactors, biological
Fluidized bed bioreactors, analysis of, 2013
Foam separation, of DNA and proteins from solution, 2253
Formic acid, enzymatic synthesis of, 25

β-Galactosidase, from *Aspergillus niger*, 2499
—, kinetics of lactose hydrolysis by, 2499
—, yeast cells containing, 1839
Gas exchange, volume changes due to, 1877(C)
Glucoamylase, hydrolysis of soluble starch by, 347
—, immobilized, 1639
Glucose analyzer, on-line, 2743(C)
Glucose oxidase, adsorbed on zeolite, 2155
—, immobilized, 207, 1225(C)
—, immobilzed, deactivation by hydrogen peroxide, 2419
—, thermal denaturation of, 1911(C)
α-1,4-Glucosidase, immobilized, 355
β-Glucosidase, immobilized, 1461(C)
Glutamate production, continuous, by immobilized whole cells, 2167
Glycerol, potentiometric determination of, 971
Growth, algal, 143
—, bacterial, structured model for, 1749
—, biomass, carbon limitation of, 579
—, biomass, photosynthetic efficiency of, 507(C)
—, mycelial, in submerged culture, 177
—, of *Scenedesmus acutus*, 1183
—, single yeast cell, 2739(C)
—, synchronous, of fission yeast, 217
—, yeast, 1319
—, yeast, in batch and continuous culture, 2725(C)
—, yeast, in ethanol, 1125
Growth yields, estimation of, 633

Hemoglobin, immobilized, 2587(C)
Hepatitis B virus-associated DNA polymerase, heat inactivation of, 1925(C)
Hydrocarbons, microbial utilization of, 1241
Hydrogen, production by *Citrobacter intermedius*, 1469(C)
—, production from formic acid, 25
Hydrogen fluoride, wood saccharification by, 903
Hydrogen production, by green alga, 1555
Hydroxy groups, activation of on carriers, 487

Insect cell culture, oxygen consumption by, 1145, 2766(E)
Invertase, immobilized, 2705
—, sucrose hydrolysis by, kinetics, 2721(C)

Jerusalem artichoke, ethanol production from, 941, 2297

Kinetics, of antithrombin denaturation, 97
—, of batch fermentation with (unstable) recombinant cultures, 2583(C)
—, biofilm nitrification, 669
—, Blackman, 1705(C)
—, of 2,4-D biodegradation, 2001
—, of death of yeast by sulfur dioxide, 2477
—, of enzymatic cellulose hydrolysis, 1047, 2383
—, of enzymatic lactose hydrolysis, 2499
—, enzymatic, of conjugate membrane, 1327
—, of enzymatic starch hydrolysis, 347
—, of enzymatic sucrose hydrolysis, 2721(C)
—, of immobilized sucrose phosphorylase, 317
—, of immobilized yeast alcohol dehydrogenase, 2087
—, of methane production, 2039
—, Michaelis–Menten, for CSTR optimal design, 1217(C)
—, of microbial leaching of minerals, 903
—, of oxygen uptake, 2519
—, of packed bed immobilized enzyme reactors, 763
—, of protein precipitation, 871
—, of thermal death of yeast, 1581
—, of thermal inactivation of DNA polymerase, 1925(C)
Klebsiella pneumoniae, elemental composition of, 1445(C)
—, growth rate of, 1445(C)
Kluyveromyces marxianus, ethanol production by, 941

Lactase, *Aspergillus oryzae*, immobilized, 329
Lactate dehydrogenase, immobilized, 1211(C)
Lactose, enzymatic hydrolysis of, 2499
Leaching, acid-bacterial, of pyrite, 83, 889
Lignocellulosics, pretreatment by compression milling, 1495
Lineweaver–Burk plot, and diffusional resistances, 977(C), 979(C), 981(C)
Lipases, immobilized, 1007(C)
—, soluble and immobilized, 2175
Lipid, microbial, production by *Rhodotorula gracilis*, 1165

Malate, enzymatic production of, 1915(C)
Membranes, collagen–alkaline phosphatase conjugate, 1327
—, transport of solutes through, 1135
Metabolism, gaseous, measurement of, 847
Metals, accumulation by algae, 2643
Methacrylate copolymers, for enzyme immobilization, 837
Methane production, by anaerobic digestion of algal biomass, 1919(C)
—, from cattle waste, kinetics of, 9, 2039
Methanol, metabolism by *Pseudomonas* C, 731(C)
Microbial growth, models for, 37
Microbial polysaccharides, solutions of, 2309
Microbial protein, production by *Aspergillus terreus*, 109, 2407
—, simulation of production processes, 817
Microcystis aeruginosa, phosphorus uptake and growth, 143

Model, ethanol effects on yeast growth, 1881(C)
—, immobilized enzymes in porous solids, 1527
—, microbial growth, 37, 889
—, for mycelial pellet growth, 177
—, structured, for bacterial growth, 1749

NAD, coimmobilized with dehydrogenases, 1915(C)
NADH, immobilized, 1211(C)
NAD kinase, immobilized, 857
NADP, production by immobilized cells, 857
Nicotinic acid, production by yeast, 1319
Nitrification, biofilm, kinetics of, 669
Nitrosomonas europaea, immobilization of, 1591

Oils, from *Botryococcus braunii*, 193
Optimal control, of fed-batch yeast cultivation, 2661
Optimization, bioprocess, 1519
—, of continuous glucose isomerse reactor system, 1889(C)
—, tower–loop reactor, 1851
Organic acids, enzymic synthesis of, 2099(C)
Oxygen, measurement of gas-phase concentrations, 2109(C)
Oxygen consumption, in insect cell culture, 1145, 2766(E)
Oxygen electrode, 2109(C)
Oxygen transfer, in bubble column, 461
—, and cellulase production, 2695
—, in high density plant cell broths, 425
Oxygen transfer characteristics, monitoring of, 1605
Oxygen transfer coefficients, measurement of, 1711(C)
Oxygen uptake, kinetics, of *Trichosporon cutaneum*, 2519

Pachysolen tannophilus, bioconversion of wheat straw to ethanol by, 1105
—, conversion of xylose to ethanol by, 371
—, immobilized, ethanol production by, 2241
Paper, waste, enzymatic degradation of, 991(C)
Paper pulp, fungal treatment of, 2063
Penicillin amidase, immobilized, 1623, 2215
Penicillin fermentation, in tower–loop reactors, 259
Pepsin, soluble conjugates of, 2627
Phosphorus, role in activated sludge, 1813
Photosynthetic efficiency, of biomass growth, 507(C)
Piggery slurry, acid hydrolysis of, 2753(C)
Plant cells, exploitation for production of natural compounds, 1965
—, high density cultures of, 425
—, pseudocells of, 2591(C)
Polyacrylonitrile, granular, for enzyme immobilization, 1639
Polyelectrolyte complex, for cell immobilization, 1591
Polyethylene glycol, and protein solubility, 1931
Polymers, synthetic, for enzyme immobilization, 2757(C)
Polyphenolics, effects on growth and celluloytic activity, 983(C)
Power law, for biopolysaccharide solutions, 2309
Predator-prey relation, microbial, 2675
Predenitrification system, suspended growth, 2557
Proteases, microbial, stabilization of, 483(C)
Proteins, hydrolysis, reactor for, 69
—, plasma, solubility of, 1931
—, precipitation and sedimentation, 871
—, precipitation and sedimentation growth, 127
Proteolytic activity, assay of, 999(C)
Pseudomonas C, metabolic pathways in, 731(C)
—, as methylotroph, 2605(C)
Pseudomonas fluorescens, attachment to stainless steel, 153
Pullulanase, immobilized, 355
Pyrite, leaching of, 83, 889, 903

Radiation degradation of waste paper, 991(C)
Acinetobacter RAG-1, emulsan from, 281
Reactors, biofilm, performance of, 1341
—, biological, a filter fermenter, 2077
—, biological, deep jet, 1905(C)
—, biological, direct digital-controlled, 1191
—, biological, fluidized bed, 2013
—, biological, immobilized cell, 595
—, biological, multistage tubular, 1623
—, biological, recirculation batch, 2215
—, biological, tower–loop, 259, 817, 1851
—, biological, tubular-loop, 651, 817
—, biological, upflow for anaerobic biological waste treatment, 1975
—, CSTR–hollow fiber for protein hydrolysis, 69
—, enzyme, fixed bed, 2705
—, enzyme, tubular flow, 2087
—, immobilized enzyme, 1889(C)
—, immobilized enzyme, diffusional influences in, 763
—, packed-bed immobilized enzyme, 2269(C)
—, upflow, for wastewater treatment, 443
Recombinant cultures (unstable), 2583(C)
Recycle, in fermentation processes, 511
Redox potential, in fermentation process control, 2123(C)
Rhizopus arrhizus, thorium biosorption by, 955
—, uranium biosorption by, 385
Rhodotorula gracilis, lipid production by, 1165

Saccharification, starch, 2441
Saccharomyces cerevisiae, death induced by sulfur dioxide, 2477
—, effects of ethanol on maximum growth temperature, 1881(C)
—, ethanol production by, 1155
—, glucose transport system of, 2601(C)
—, growth, effect of pH on, 2725(C)
—, immobilized, ethanol fermentation by, 781, 797
—, immobilized, growth and metabolism of, 805

—, thermal death of, 1581
Saccharomyces rosei, ethanol production by, 941
Saccharomyces uvarum, bioconversion of wheat straw to ethanol by, 1105
—, ethanol production by, 1155
Scenedesmus acutus, composition of, effect of culture conditions on, 1301
—, growth of, 1183
—, growth of, effect of culture conditions on, 1287
Sepharose, for enzyme immobilization, 207
Shear, effects on soya protein precipitate, 1271
Silica, for enzyme immobilization, 1765
Soya protein, centrifugal recovery of, 2319
—, precipitation of, 871, 1271
Soya protein precipitates, zeta potential and particle size, 1897(C)
Sphalerite, leaching of, 919
Spirulina maxima, anaerobic digestion of, 1919(C)
Starch, continuous enzymatic liquefaction of, 2441
—, hydrolysis, by glucoamylase, 347
—, hydrolysis by pullulanase and α-1,4-glucosidase, 355
Sterilization, by fluidized beds, 757(C)
Stress, hydrodynamic, capacity of algae, 553
Sucrose hydrolysis, by invertase, 2721(C)
Sucrose phosphorylase, immobilized, 317
Sulfolobus acidocaldarius, coal desulfurization by, 2115(C)
Surfactant, emulsan from *Acinetobacter*, 281
—, production by *Arthrobacter paraffineus*, 165

Tetrahymena pyriformis, continuous culture on *E. coli*, 1953
Thermomonospora curvata, cellulase production by, 2487
Thermomonospora sp., cellulase production by, 1901(C)
Thiobacillus ferrooxidans, leaching of pyrite, 919
—, leaching of pyrite by, 889
—, sulfur removal from coal, 749(C)
Tissue culture, pig kidney cells on glass spheres, 245(C)
Trichoderma reesei, cellulase activity of, 1233
—, cellulase producing mutant, 251(C)
—, strain improvement in, 241(C)
Trichoderma viride, cellulase production by, 2695
—, effects of polyphenolics on, 983(C)
Trichosporon cutaneum, growth and oxygen uptake, 2519
Tritylagarose, for enzyme immobilization, 403, 1221(C)
Trypsin, immobilization by solid-state mix-grinding, 753(C)
Tylosin biosynthesis, regulation of, 1093

Ultrafiltration, for assay of proteolytic activity, 999(C)
—, of proteins, shear effects on, 2103(C)
Urease, immobilized, 2757(C)

Virus, swine vesicular disease, production of, 245(C)
Volume changes in fermentation processes, 1877(C)

Whey, treatment by anaerobic fluidized bed, 2539
Wood, saccharification of, 903

Yeast, fission, synchronous growth of, 217
—, growth characteristics in ethanol, 1125
—, immobilization of, 1839
—, single cell growth rate, 2739(C)
Yeast alcohol dehydrogenase, immobilized, 2087
Yeast growth, and nicotinic acid production, 1319
Yeast propagation, optimal control of, 2661
Yields, of organic products from substrates, 2263(C)

Zymomonas anaerobia, alcohol production by, 691
Zymomonas mobilis, ethanol production by, 1155
—, immobilized, ethanol production by, 595